REMARKS

Claims 1-14 are pending in the present application, and are rejected. No new matter has been entered.

Double Patenting

Claims 1-14 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-9 of copending Application No. 10/604,826 (published as US 2004/00110064). The Examiner asserts that the claims are not patentably distinct from each other because the claims of the other application would fall into or at best overlap the present claims.

Applicants submit herewith a terminal disclaimer in compliance with 37 C.F.R. §§1.321(c) to overcome the above rejection without introducing arguments that could be used against either resulting patent. Applicants submit that the rejection is now moot.

Claim Rejections - 35 U.S.C. §103(a)

Claims 1, 2 and 6-11 are rejected under 35 U.S.C. §103(a) as being unpatentable over Sekino et al. (US 6,794,089) in view of Fujita et al. (US 6,884,546).

The Examiner admits that Sekino et al. discloses the invention of claims 1 and 2 except for the claimed amount of the cyclic carbonic ester with the C=C double bond in relation the anode capacity.

The Examiner asserts that Fujita et al. teach that the amount of vinylene carbonate should be kept no more than 15 weight percent because any more would not produce any cycle life improvement (column 11, line 67 through column 12, line 4), in a cell with a graphite anode (column 5, lines 37-49). Thus, Fujita et al. give the artisan guidelines for choosing an appropriate amount of vinylene carbonate to include in the cell. The Examiner asserts that because Sekino et al. also disclose a cell with a graphite anode, the teachings of Fujita et al. would be applicable thereto. The Examiner concludes that it would have been obvious to optimize the amount of vinylene carbonate in the cell of Sekino et al. as taught by Fujita et al. Regarding claim 6, the Examiner asserts that skilled artisan would have been motivated to optimize the mass concentration of the negative active material, since the amount thereof would affect the amount of electricity that the cell may produce.

Applicants note that in order to establish a *prima facie* case of obviousness, three basic criteria must be met. First, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Second, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Finally, there must be a reasonable expectation of success. (Manual of Patent Examining Procedure (MPEP) §2142). The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on Applicant's disclosure.

With respect to the suggestion to make the claimed combination, MPEP §2143.01 states that: "Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art."

Applicants respectfully disagree with the above rejection because there is no suggestion to include the vinylene carbonate of Fujita et al. in the battery of Sekino et al. *in the claimed amount* of the cyclic carbonic ester having C=C double bond being in a range of 1.0×10^{-8} to 13.0×10^{-5} g per negative electrode capacity of 1 mAh.

Applicants agree that Fujita et al. teach that the amount of vinylene carbonate should be kept no more than 15 weight percent of the electrolyte. However, this is quite different than the claimed amount of the cyclic carbonic ester having C=C double bond being in a range of 1.0×10^{-8} to 13.0×10^{-5} g per negative electrode capacity of 1 mAh. The amount of the cyclic carbonic ester having C=C double bond per negative electrode capacity of 1 mAh is not prescribed in Fujita et al. nor Sekino et al. Moreover, the description of Fujita et al. is insufficient even to convert the amounts of VC contained in Fujita et al. to g per negative electrode capacity of 1 mAh.

Applicants submit that Fujita et al. add vinylene carbonate only *optionally* (column 11, lines 55- indicate that VC or DFA is added.) Further, Fujita et al. only indicate an upper limit for content of VC, which is 15 weight percent of the electrolyte. Fujita et al. do not indicate any critical lower limit.

On the other hand, the present specification shows evidence in Table 1 that the critical range of VC in the electrolyte is between 1.0×10^{-8} to 13.0×10^{-5} g per negative electrode capacity of 1 mAh. Table 1 shows the result of exceeding the claimed upper limit of VC: Comparative Examples 2 and 3 show that increased amounts of VC do not help the output voltage, which is what would have been expected from Fujita et al., but they actually show a decrease in output voltage, which would have been unexpected in light of Fujita et al.

While the zero content of VC in Comparative Example 1 results in equivalent initial output voltage, Table 2 shows that the zero content Comparative Example 1 results in poor percentage of battery retention.

Therefore, Applicants submit that it is clear that the critical amounts of VC in the invention would not have been reached by one skilled in the art upon reading Sekino et al. and Fujita et al. Moreover, the unexpectedly superior results associated with the claimed amounts of VC would rebut the obviousness rejection.

Claims 3-5 are rejected under 35 U.S.C. §103(a) as being unpatentable over Sekino et al. in view of Fujita et al. as applied to claim 2 above, and further in view of Suzuki et al. (US 6,664,008).

The Examiner admits that Sekino et al. do not disclose the present values of L_C or (I_{110}/I_{002}). The Examiner asserts that Suzuki et al. disclose graphite for use in a battery anode, which has a d_{002} of 0.335 to 0.337 nm, and a L_C of at least 30 nm (column 4, lines 13-51). Because these distances are the same as presently claimed, the Examiner asserts that X-ray diffraction peaks would have a similar ratio. Because Suzuki et al. teach the use of their graphite

as an anode material for occluding and releasing lithium (column 4, lines 13-19), asserted to be the same purpose as in Sekino et al., the Examiner concludes that it would have been obvious to use the graphite of Suzuki et al. as the anode material in the cell of Sekino et al.

Applicants respectfully disagree with this rejection for the same reason as the disagreement with the rejection of claim 1. Because claims 3-5 are dependent on claim 1 and necessarily include at least its limitations, and because the rejection of claim 1 has been overcome, the rejection of claims 3-5 should similarly be overcome.

Claims 12 and 14 are rejected under 35 U.S.C. §103(a) as being unpatentable over Sekino et al. in view of Fujita et al. as applied to claim 1 above, and further in view of Nakanishi et al. (US 2002/0061443).

The Examiner admits that Sekino et al. and Fujita et al. do not disclose the present cathode material, which contains a Li-Mn composite oxide and a Li-Ni-Co-Mn composite oxide. The Examiner asserts that Nakanishi et al. disclose a cathode for a lithium cells comprising a mixture of these two types of oxides (section 0012) in the presently recited range of relative amounts. The Examiner concludes that it would have been obvious to use the cathode mixture of Nakanishi et al. in the cell of Sekino et al., modified according to the teachings of Fujita et al.

Applicants respectfully disagree with this rejection for the same reason as the disagreement with the rejection of claim 1. Because claims 12 and 14 are dependent on claim 1 and necessarily include at least its limitations, and because the rejection of claim 1 has been overcome, the rejection of claims 12 and 14 should similarly be overcome.

Claim 13 is rejected under 35 U.S.C. §103(a) as being unpatentable over Sekino et al. in view of Fujita et al. and Nakanishi et al. as applied to claim 12 above, and further in view of Zhong et al. (US 5,700,597).

The Examiner asserts that Zhong et al. disclose a cathode material comprising a Li-Mn composite oxide that also includes a second transition metal. Specific examples of the second metal are Ni and Co. The Examiner concludes that it would have been obvious to use the Li-Mn composite oxide of Zhong et al. in place of that of Nakanishi et al.

Applicants respectfully disagree with this rejection for the same reason as the disagreement with the rejection of claim 1. Because claim 13 is dependent on claim 1 and necessarily include at least its limitations, and because the rejection of claim 1 has been overcome, the rejection of claim 13 should similarly be overcome.

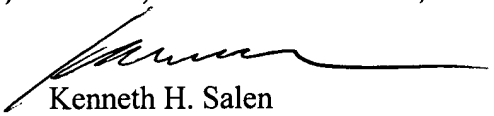
In view of the aforementioned amendments and accompanying remarks, Applicants submit that that the claims, as herein amended, are in condition for allowance. Applicants request such action at an early date.

If the Examiner believes that this application is not now in condition for allowance, the Examiner is requested to contact Applicants' undersigned attorney to arrange for an interview to expedite the disposition of this case.

If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

WESTERMAN, HATTORI, DANIELS & ADRIAN, LLP



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